

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
16 June 2005 (16.06.2005)

PCT

(10) International Publication Number
WO 2005/053610 A2

- (51) International Patent Classification⁷: **A61K**
- (21) International Application Number:
PCT/US2004/039221
- (22) International Filing Date:
23 November 2004 (23.11.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/525,333 26 November 2003 (26.11.2003) US
- (71) Applicant (for all designated States except US): **ATON PHARMA, INC.** [US/US]; 33 Avenue Louis Pasteur, Boston, MA 02115 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **MILLER, Thomas, A.** [US/US]; 16 Garrison Road, #4, Brookline, MA 02445 (US). **WITTER, David, J.** [US/US]; 3 Eagle Drive, Norfolk, MA 02056 (US). **BELVEDERE, Sandro** [IT/IT]; Corso Cavour, I-37121 Verona (IT).
- (74) Agent: **FENG, Flora, W.**; Mitz, Levin, Cohn, Ferris, Glowsky and Popeo, P.C., Chrysler Center, 666 Third Avenue, New York, NY 10017 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— without international search report and to be republished upon receipt of that report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **DIAMINE AND IMINODIACETIC ACID HYDROXAMIC ACID DERIVATIVES**

(57) Abstract: The present invention relates to a novel class of hydroxamic acid derivatives having a diamine or iminodiacetic acid backbone. The hydroxamic acid compounds can be used to treat cancer. The hydroxamic acid compounds can also inhibit histone deacetylase and are suitable for use in selectively including terminal differentiation, arresting cell growth and/or apoptosis of neoplastic cells, thereby inhibiting proliferation of such cells. Thus, the compounds of the present are useful in treating a patient having a tumor characterized by proliferation of neoplastic cells. The compound of the invention are also useful in the prevention and treatment of TRX-mediated diseases, such as autoimmune, allergic and inflammatory diseases, and in the prevention and/or treatment of diseases of the central nervous system (CNS), such as neurodegenerative diseases. The present invention further provides pharmaceutical compositions comprising the hydroxamic acid derivatives, and safe, dosing regimens of these pharmaceutical compositions, which are easy to follow, and which result in a therapeutically effective amount of the hydroxamic acid derivatives *in vivo*.

WO 2005/053610 A2